Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

1.932
A2Ag82

AIC-182
March, 1948

METHODS AND RESULTS OF ANALYSIS AND EXAMINATION OF CANDY AND ITS INGREDIENTS

A list of References

Compiled by H. H. Hall

Agricultural Chemical Research Division
Bureau of Agricultural and Industrial Chemistry
United States Department of Agriculture
New Orleans 19, Louisiana

Under the Cooperative Research Project with the
National Confectioners' Association

This list of references is compiled to serve as a ready guide to this phase of the candy literature. The journal, Chemical Abstracts, has served as the principal source of references and in such cases the abstract reference is given together with that of the original publication. No particular attempt is made to abstract each article other than to indicate something of the nature of its contents.

JUN 1948
U. S. DEPARTMENT OF AGRICULTURE

1. AMBLER, J. A. The candy test for sugars. Mfg. Conf. 7:17-19, 82. 1927.
Color test for sugars.

2. Association of Official Agricultural Chemists. Official and Tentative Methods of Analysis of the Association of Official Agricultural Chemists. Sixth Edition 1945. Published by the Association of Official Agricultural Chemists. Washington, D. C.

3. BARSCH, H. A new method for determining fat in milk and cream bonbons (cream chocolates). Chem. Ztg. 52:659. 1928.
Chem. Abs. 22:4180. 1928.
Description of method.

4. BEYTHIEN, A. Principles for the evaluation of marmalades, confections, jams and jellies. Z. Untersuch. Lebensm. 56:80-106. 1928.
Chem. Abs. 23:914. 1928.
Discussion of proposed definitions and standards for German candies.

5. BORGHI, M. Unified methods of analysis of cacao, cacao butter and chocolate devised by the International Committees. Ind. dolciaria. 3:138-41. 1938.
Chem. Abs. 33:3477, 1939.
Methods for determination of sucrose and lactose in chocolate and for the calculation of milk powder in milk chocolate.

6. BRAUNSDORF, K. Determination of fat content in marzipan and persipan products. Z. Untersuch. Lebensm. 61:494-500. 1931.
Chem. Abs. 26:535. 1932.
Description of method.

7. BROWNE, C. A., and ZERBAN, F. W. Physical and chemical methods of sugar analysis. John Wiley and Sons, Inc., New York, N. Y.
Compilation of methods.

8. CASADERANTE (of St. Sebastian Municipal Laboratory). The occurence of HCN in candy. Ann. Chim. Anal. Appl. 13:269, through Chem. Zentr. 1908: (II)723.
Chem. Abs. 3:1312. 1909.
Benzaldehyde, nitrobenzene and HCN were found in "caramel des Alpes".

9. CERIOTTI, A., SANGUINETI, A., SONOL, J., and SARTOR, A. Milk confections, their industrialization, analysis and standardization. Rev. facultad cienc. quim (Univ. La Plata)6:Pt. 1, 15-21. 1929.
Chem. Abs. 24:2508. 1930.
Defines milk products made by concentrating milk with added sugar, butter, honey, glucose, chocolate, cacao and/or vanilla. A typical analysis of 34 samples collected in Buenos Aires is: water, 25.75; nitrogenous materials, 7.82; fat, 7.90; lactose, 15.50; sucrose, 41; ash, 1.40%.

10. CHATFIELD, C., and ADAMS, G. Proximate composition of American Food Materials. U. S. D. A. Circular No. 549. June 1940. 91 pp. with refs.
Gives composition of common ingredients, analysis and caloric values of typical type candies.

11. CHURCH, M. B., PAINE, H. S., and HAMILTON, J. Sugar-tolerant yeasts in chocolate coated creams. Ind. Eng. Chem. 19:358-63. 1927.
Chem. Abs. 21:1503. 1927.
Various yeasts of high sugar tolerance cause bursting through gas formation. Use of sound ingredients and cream of high sirup density are advocated to reduce this trouble.

12. CLACHER, W. The use of the refractometer in the analyses of jams and jellies, marmalades and confections. Int'l. Sugar Jr. 12:509-20. 1911.
Chem. Abs. 5:391. 1911.
Gives methods for use and tables to assist in calculations.

13. DAIRAU, F. and LESSER, M. A. The nutritive value of candy bars. Their importance in the wartime diet as an emergency food. Med. Record. 156:23-4 46-7. 1943.
Chem. Abs. 37:1523. 1943.
Discussion of value and importance.

14. DURIER, E. The estimation of glycyrrhizic acid in candies and liquorice. Ann. fals. 6:252-5. 1914.
Chem. Abs. 8:765. 1914.
Method described for estimation of acid in black candies sometimes colored with lampblack.

15. ETIENNE and ALLONSIUS. Method for the analysis of caramels. Ann. fals. 31:358-61. 1938.
Chem. Abs. 33:1054. 1939.
With particular regard to definition of caramels.

16. EVSTIGNEEV, V. B. Electrometric methods of analytical control in the confectionery industry. Trudy Tsentral. Nauch. - Issledovatel. Inst. Konditerskoi Prom. 1939, No. 1. 82-118.
Chem. Abs. 35:3728. 1941.
Methods and application for potentiometric determination of acidity, invert sugar, end point in boiling fruit or berry juices and moisture in powders from dialectric constants are reviewed.

17. FELLENBERG, T. V. Test for presence of egg albumin and serum albumin in materials for confectionery. Mitt. Lebensm. Hyg. 33:200-11. 1942.
Chem. Abs. 38:3739. 1944.
Describes turbidimetric method.

18. FINCKE, H. Determination of fat in cacao raw material and products and in confectionery, and extraction of the fat for analysis. Bull. official office intern. cacao chocolat. 9:267-73. 1939.
Chem. Abs. 34:3937. 1940.

19. FINCKE, H. Investigation of milk and cream bonbons and the determination of milk fat and cocoanut oil in fat mixtures. Z. Untersuch. Lebensm. 51:357-68. 1926.
Chem. Abs. 20:3517. 1926.
Describes method for estimation of fats from different sources.

20. FINOGENOV, V. Y. Methods for determining fats in confections. Trudy Vsesoyvz Nauch. - Issledovatel. Inst. Konditerskoi Prom. 1941, No. 4, 5-51.
Chem. Abs. 37:5795. 1943.
Comparative experiments confirm idea that no method is generally applicable for determination of fats in confections. Recommends methods for different types of candies.

21. Food and Drug Administration. Microanalysis of Food and Drug Products. Food and Drug Circular No. 1, 171 pp. with references. Food and Drug Administration, Federal Security Agency, Washington, D. C. U. S. Gov't. Printing Office, Washington, D. C. 1944.
Description of methods and equipment, with illustrations, for microanalysis of food and drug products for evidence of filth, and insect, rodent and mold infestations.

22. FOSCHINI, A. The determination of sucrose in candies and chocolate. Industria chimica 9:1636-9. 1934.
Chem. Abs. 29:2615. 1935.
Confirms value of modified official Italian method described in Industria chimica 9:611-19. 1934.

23. FOUASSIER, M. Methods for the analysis of caramels. Ann. fals. 31:94-6. 1938.
Chem. Abs. 32:7596. 1938.
Describes method for separating soluble and insoluble constituents prior to analysis.

24. FOWLER, C. C. Interpretation of candy analysis. Chem. Bull. (Chicago) 8:30-1. 1921.
Chem. Abs. 15, 1767. 1921.
Analysis of marshmallow, composed of gelatin, cane and corn sugar, is interpolated to give four different formulas for factory production.

25. FRASER, L. S. Analytical control as an aid to the confectionery buyer. Conf. Production. 1:140-1, 168-70. 1935.
Chem. Abs. 29:6660. 1935.
Discusses testing edible ingredients and nonedible packaging materials.

26. GAHRTZ, G. Estimation of fat in milk and cream bonbons. Pharm. Zentralhalle. 68:177-9. 1927.
Chem. Abs. 21:1852. 1927.
Comparison of results of several samples examined by Gottlieb-Rose and Koning-Mooy methods.

27. GOLDSHTEIN, M. V. Determination of sugar in food products by means of a refractometer. Lab. Prakt. (USSR) 15:No. 9, 21-22. 1940.
Chem. Abs. 35:1130. 1941.
Method is given for use of refractometer which is reported to be accurate, simple and fast when compared with chemical methods.

28. GRASSFELD, J., and SCHNETKA, M. Calculation of sucrose and glucose sirup contents of marzipan and persipan preparations from the polarization before and after inversion. Z. Untersuch. Lebensm. 61:485-90. 1931.
Chem. Abs. 26:535. 1932.
Description of method.

29. GROVER, D. W. Determination of sugars in chocolate and confectionery. Food Mfg. 15:202-3, 211. 1940.
Chem. Abs. 35:6344. 1941.
Method for estimation of sucrose, glucose and lactose.

30. HARRAL, J. C. Determination of cacao alkaloids in confectionery. Analyst 65:408. 1940.
Chem. Abs. 34:6379. 1940.
Description of procedure.

31. HÄRTEL . Evaluation of bonbons made from milk, cream, malt, etc. Z. Untersuch Lebensm. 60:170-85. 1930.
Chem. Abs. 26:1675. 1932.
Evaluation and proposal of standards.

32. HARTMANN, W. Estimation of the milk constituents of caramel. Pharm. Zentralh. 69:337-9. 1928.
Chem. Abs. 22:2795. 1928.
Discussion of methods and results.

33. HELSEL, W. G. Report on microanalytical methods for extraneous materials in fruits and fruit products, and confectionery, sugars, sirups, molasses and honey. J. Assoc. Official Agr. Chem. 28:230-1. 1945.
Chem. Abs. 39:3845. 1945.

34. HELSEL, W. G. Report on (the determination of) extraneous materials in nut products and confectionery. J. Am. Pub. Health. 36:60-2. 1946.
Chem. Abs. 40:3197. 1946.

35. HEUSER, G. F., and KRAPOHL, E. Determining fat in milk and cream caramels. Z. Untersuch Lebensm. 82:145-56. 1941.
Chem. Abs. 38:2132. 1944.
Recommends method for separation of fat-protein. Results obtained agree with those obtained by Kuhlmann and Grossfeld method.

36. JORDAN, S., and LANGWILL, K. E. Confectionery analysis and composition. The Manufacturing Confectionery Publishing Co., Chicago, Ill. 116 pp. 1946.
Discussion of analytical procedures, reconstruction of production formulas from analytical values, and results of analysis of many samples of candies.

37. KOLB, E., and LANIER, H. The strength of the acid taste of the organic acids used in the confectionery industry. Z. Untersuch Lebensm. 79:541-61. 1940.
Chem. Abs. 35:1137. 1941.
The strength of the acid taste imparted by lactic, tartaric and citric acid in saturated sugar solutions takes the same course as in water. Taste increases with increased number of carboxyl groups in acid. The pH in sugar solutions increases with the acid content and also decreases with increased sugar content.

38. KRÜNER, W., and REISCHEL, W. Physiological evaluation of starch sirup. Z. Spiritusind. 61:115-16. 1938.
Chem. Abs. 32:8488. 1938.
The suggestion that starch sirup is of smaller nutritional value than sucrose is combated. The opinion is expressed that reasonable proportions give improved products rather than one of less desirable character.

39. KUHLMANN, J., and GRASSFELD, J. A study of milk and cream confections. Z. Nahr. Genussm. 50:346-51. 1925.
Chem. Abs. 20:1119. 1926.
Method for separating fat of milk and cream from other fats.

40. LANGWILL, K. E. Identification of fats: recognition important to candy quality. Mfg. Conf. 21:15-17. 1941.
Chem. Abs. 36:1201. 1942.
Gives constants for various fats and oils.

41. LANGWILL, K. E. Application of analytical constants to the identification of fats. Mfg. Conf. 22:11-12. 1942.
Chem. Abs. 36:1687. 1942.
A discussion and illustration of the use of Wiley m.p., iodine saponification no., etc., for the determination of the approximate amounts of fats and fatty oils in the fatty materials extracted from chocolate products and caramels and butter crunch.

42. LECOQ, R. Analysis of chocolates. J. pharm. chim. (8) 12, 101-9. 1930.
Chem. Abs. 25:1295. 1931.
Complete analytical figures given on analysis of pure chocolates composed solely of cacao, sugar and cacao butter.

43. McGILL, A. Highly colored confections. Bull. 200. Lab. Inland Rev. Dept. Ottawa, Canada.
Analysis of 149 commercial samples showed softer candies contain 50-70% sucrose; hard candies 70-85%.

44. MOLNAR, N. M., and GRUMER, J. Volumetric estimation of lac on glazed candies. Ind. Eng. Chem. Anal. Ed. 11:673-4. 1939.
Chem. Abs. 34:1090. 1940.
Description of method.

45. PHILBRICK, B. C. The role of starch in the cracking of chocolate creams. J. Bact. 12:275-8. 1926.
Chem. Abs. 21:140. 1927.
Blown chocolates usually contain glucose fermenting bacteria which infect molding starch. Continued use will infect all chocolates.

46. PISAREV, N. S., KARPOV, M. F., and FALUNINA, A. F. Causes of fat bloom in chocolate. Trudy Tsental. Nauch-Issledovatel, Inst. Konditerskoi Prom. 1939. No. 1 63-68.
Chem. Abs. 35:3728. 1941.
The effect of rapid chilling on fat and use of stabilizers is discussed. Chocolate damaged by fat bloom can be recovered by mechanical means and is then highly resistant to fat bloom in storage.

47. POE, C. F., and FEHLMANN, H. A. A biochemical study of yeast candy. U. of Colorado Studies 18:197-9. 1929.
Chem. Abs. 26:3286. 1932.
Rats lost weight on yeast candy due to vitamin B deficiency. Chocolate in candy may also have had adverse effect.

48. POE, C. F., and GOURE, H. V. Biochemical study of added yeast content of candies. U. of Colorado Studies, 21:93-9. 1934.
Chem. Abs. 28:3449. 1934.
Vitamin B complex of yeast candies determined by rat feeding tests. Some samples practically devoid of growth-promoting substances while others contained as much yeast as claimed in terms of vitamin B. In low content samples yeast probably added at time of manufacture but because of high temperatures used in cooking, or other reasons, the vitamins were rendered inactive.

49. RAPOPORT, A. L., and TARKHOVA, A. V. Measuring the thermal constants of candies (chocolate and caramel). Trudy Vsesoyuz. Nauch-Issledovatel. Inst. Konditerskoi Prom. 1941: No. 3. 55-100.
Chem. Abs. 37:6364. 1943.
In candy manufacture thermal calculations based on the heat capacity of sucrose sirups are grossly inaccurate if applied to caramel sirup. Thermal conductivity and heat capacity determinations made by Kondratev's method were accurate enough (within 5%) for technical purposes.

50. Report of 2nd International Congress for the Repression of Food Adulteration. Report upon sugar, glucose, candy, preserves, confections, etc. Bull. assoc. chim. sucr. dist. 27:159-69. 1910.
Chem. Abs. 4:350. 1910.
Standards proposed by French delegation.

51. ROBERTS, C. C. Determination of sucrose in confectionery containing cooked starch and in marshmallows. Orig. Com. 8th Intern. Cong. Appl. Chem. Appendix.
Chem. Abs. 6:3478. 1912.
Analytical method given.

52. SCHUTT, D. B. Yeast contamination as a source of explosion in chocolate coated candies. Sci. Agr. 6:118-9. 1925.
Chem. Abs. 20:633. 1926.
Source of yeast was a wooden barrel used to hold excess filler until required for dipping. This condition corrected by sterilizing containers between batches.

53. SCHMIDT, A. A. Enrichment of confections with antiscorbutic vitamins. Proc. Sci. Inst. Vit. Res. (USSR)2:11-18. 1937.
Chem. Abs. 31:8614. 1937.
Fruit-filled chocolate coated candies fortified with pine needle concentrate as source of vitamin retained full antiscorbutic potency for six months.

54. SMITH, B. H. Varnishes on chocolates and confectionery. U.S.D.A. Bur. Chem. Bull. 132:58-60. 1910.
Chem. Abs. 4:2525. 1910.
Method for isolation and identification.

55. STEENBERGEN, H. D. The determination of glucose molasses in candy. Chem. Weekblad. 21:83-6. 1924.
Chem. Abs. 18:1718. 1924.
Describes a method.

56. STEUDEL, H. The vitamin content of chocolates. Ernahrung 5:229-31. 1940. Chem. Zentr. 1941, I, 713.
Chem. Abs. 37:1523. 1943.
Vitamins A and B could be detected by chemical means both in chocolate made with whole milk powder and in that in which whole soybeans had been substituted for part of the milk powder.

57. STOLDT, W. Examination of confectionery containing milk and cream. Z. Untersuch. Lebensm. 77:142-5, 1939.
Chem. Abs. 33:8322. 1939.
A procedure for the determination of milk fat in caramels based on a combination of Kuhlmann and Grassfelds precipitation method and digestion with HCl.

58. TANNER, F. W., and SNYDER, D. M. Bacteriology of candy. Proc. of the First Food Conference of the Inst. of Food Technologists. pp. 307-21. 1940.
Review of literature with references, and report of examination of market candies with discussion of longevity of organisms in candy.

59. TERRIER, J., and BERNER, C. Determination and analysis of the fat in caramels (taffies). Mitt. Lebensm. Hyg. 35:37-46. 1944.
Chem. Abs. 39:3597. 1945.
A solvent extraction method using alcohol and ether is described.

60. VAECK, S. V. Determination of sucrose in chocolate. Medell. Vlaam. Chem. Ver. 8:59-65. 1946.
Chem. Abs. 41:1349. 1947.
Describes method for analysis of chocolate containing known amount of sucrose and comparison of results obtained by other methods.

61. VANDRAC, I. Fungi from concentrated sugar solutions and sugar products. Gambrinus Z. Bier, Malz. u. Hopfen 3:201-5. 1942. Zentr. Bakt. Parasitenk II. Abt. 106:55. 1943.
Chem. Abs. 38:4041. 1944.
Zygosaccharomyces, Torula and Willia isolated from soft-centered bonbons. Probably carried into candy by starch.

62. VIZERN, and GUILLOT. Detection of HCN in confectionery. Ann. chim. anal. 24:106. 1942.
Chem. Abs. 38:3032. 1944.
Report that roasted bitter almonds can be used without danger in confectionery. The usual test for HCN may be negative in spite of the presence of some amygdalin which is not hydrolyzed easily because the emulsin is destroyed by roasting. In the analysis it is therefore advisable to add some sweet almonds to replace lost enzyme.

63. VOL'PER, I. Recovery of benzaldehyde and HCN from bitter nut kernels. Org. Chem. Ind. (USSR).4:522. 1937.
Chem. Abs. 32:4683. 1938.
Bitter nut kernel from peach, apricot, and almond made useful for confectionery by decomposition of amygdalin.

64. WARNE, L.G.G. Determination of moisture content. Nature 150:607. 1942.
Chem. Abs. 37:965. 1943.
Moisture in most confectionery materials is determined by mixing 5 g. with 5 g. absolute alcohol and drying 5 hours at 105°. Method is excellent for powdered materials, satisfactory for sirups but not applicable to living plants or animals.

65. WEINZIRL, J. The cause of explosion in chocolate candies. J. Bact. 7:599-604. 1922.
Chem. Abs. 17:1676. 1923.
Anaerobic bacteria of the type B. sporogenes are the chief cause but yeast may also be a cause. B. coli apparently not involved. Egg albumen source of organisms.

66. WEINZERL, J. Sugar as a source of anaerobes causing explosion of chocolate candies. J. Bact. 13:203-7. 1927.
Chem. Abs. 21:2991. 1927.
Reports five types of anaerobes found in sugar.

67. WOOD, C. A. Report on (the analysis of) confectionery. J. Assoc. Official Agr. Chem. 28:535-6. 1945.
Chem. Abs. 40:652. 1946.
Description of method for determination of lac on glazed candies.

68. WOODRUFF, S., and VAN GILDE, H. Photomicrographic studies of sucrose crystals. Jr. Phys. Chem. 35:1355-67. 1931.
Chem. Abs. 25:3096. 1931.
Gives information about crystal sizes as influenced by different methods for preparing fondant.

INDEX

	Item
Acids	14,37
Adams, G.	10
Adulteration	50
Albumin	17
Allonsius	15
Ambler, J. A.	1
Analysis, interpretation of	21,24, 36,41,42,66
Assoc. Offic. Agr. Chem.	2
Bacteriology	58,66
Barsch, H.	3
Benzaldehyde	63
Berner, C.	59
Beythien, A.	4
Bonbons	3,18,26,31
Borghi, M.	5
Braunsdorf, K.	6
Browne, C. A.	7
Bursting, chocolate	11,45,52,65, 66
Cacao, cacao butter	5,18,30
Caramel	15,23,32,35,59
Casaderante	8
Ceriotti, A.	9
Chatfield, C.	10
Chocolate	5,27,29,42,46 56,60
Church, M.	11
Clacher, W.	12
Confections	4,12,29,34,43,57,62
Control, analytical	25
Damarau, F.	13
Durier, E.	14
Etienne	15
Evstigneev, V. B.	16
Falunina, A. F.	46
Fat	3,6,18,20,26,35,40,41,46,59
Fehlmann, H. A.	47
Fellenberg, T. V.	17
Fincke, H.	18,19
Finogenov, V. Y.	20
Food and Drug Administration	21
Foods, composition	10
Foschini, A.	22
Fouassier, M.	23
Fowler, C. C.	24
Fraser, L. S.	25
Gahrtz, G.	26
Glycyrrhizic acid	14
Goldshtein, M. V.	27
Goure, H. V.	48
Grassfeld, J.	28
Grover , D. W.	29
Gruner, J.	44
Guillot	62
Hamilton, J.	11
Harral, J. C.	30
Härtel	31
Hartmann, L.	32
Helsel, W. G.	33,34
Heuser, G. F.	35
Hydrocyanic acid	8,62,63
Jams	4,12
Jellies	4,12
Jordan, S.	36
Karpov, M. F.	46
Krapohl, E.	35
Kröner, W.	38
Kuhlmann, J.	39
Lac	44
Lanner, H.	37
Langwill, K. E.	36,40,41
Lecoq, R.	42
Lesser, M. A.	13
Liquorice	14
Marmalade	4,12
Marshmallow	51
Marzipan	6,28
McGill, A.	43

	Item
Methods, of analysis	2,3,5,6,7,9,12,14, 15,16,17,18,19,20,22,23,27,29,30,32, 33,35,36,44,49,51,55,57,59,60,64
Milk, and milk confections	..3,9,18,26, 32,35,39,57.
Molasses	55
Molnar, N. M.	44
Nut products	34,63
Nutritive value	13
Paine, H. S.	11
Persipan	6,28
Philbrick, B. C.	45
Pisarev, N. S.	46
Poe, C. F.	47
Rapoport, A. L.	49
Reischel, W.	38
Roberts, C. C.	51
Sanguineti, A.	9
Sartor, A.	9
Schnetka, M.	28
Schutt, D. B.	52
Schmidt, A. A.	53
Smith, B. H.	54
Snyder, D. M.	58
Sonol, J.	9
Starch	38,45,51
Steenbergen, H. D.	55
Steudel, H.	56
Stoldt, W.	57
Sugar (sucrose,glucose,lactose)	...1,7, 22,27,28,29,51,55,60,61,66,68.
Tanner, F. W.	58
Tarkhova, A. V.	49
Terrier, J.	59
Vaeck, S. V.	60
Vandrac, I.	61
Van Gilde, H.	68
Vitamins	53,56
Vizern	62
Vol'per, I.	63
Warne, L.G.G.	64
Weinzirl, J.	65,66
Wood, C. A.	67
Woodruff, S.	68
Yeast	11,47,48,52,61
Zerban, F. W.	7

LW:3/26/48

INDEX

	Item
Acid	172
Ascorbic	120,191
Agar	55
Agricultural products, as ingreds.	59
Air conditioning	86
Andresen, V.V.J.	1
Apparatus	25,76,144,163
Appel, C. H.	6
Apple sugar	116
Axelrod, A.	7
Back, E. A.	8
Badollet, M. S.	139
Bakanov, N. A.	9
Baker, G. R.	10
Basina, S. A.	42
Belcher, L.	11
Bell, W. A.	12
Bennett, L. J.	25
Bennion, E. B.	14
Berman, M.	13
Bice, C. W.	77
Bonbons	57,72,149,176
Books	6,12,13,15,23,34,38 44,54,57,58,71,72,73,74,75,78,81,83, 88,89,90,102,112,130,141,145,149,150 153,160,183,184.
Bradley, A.	15
Brickner, V.	135
Britschgi, W.	16
Browne, C. A.	17
Buchanan, B. F.	18
Bunting, R. W.	81
Butler, H. G.	19
Bywaters, H. W.	20
Calif. Fruit Growers Assoc.	21
Campbell, D.	38
Caramel	75,110,149,161
Carreck, M. S.	22
Cereal products	9
Charbonnet, L.	59
Chemistry of candy, foods	81,91,132
Chenoweth, W. W.	23
Chicory	175
Childs, W. H.	24
Chocolate (see also coatings)	10 20,34,36,83,90,127,140,149,151,184
Bloom	50
Christensen, H. K.	25
Clark, T.	26,27
Clendenning, T.	28
Clyne, E. J.	30
Coatings (see also chocolate)	10 79,131.
Slab	63
Cocoa	20,34,40,41,83,184
Collings, E. J.	29
Colloids (see also gums, pectins)	14,55 106.
Colors	30,127
Control, process	125,142,144,172
Cook, D. M.	35
Cordials	4
Cotton, R. T.	8
Cox, L. J.	77
Cream(s)	2,16,73,78,133,174
Cruess, W. V.	31
Crystallization	118,119,121,152,163
Culver, W. C.	32
Dairy product (see also milk, cream)	36
Daly, R. E.	33
Damblon, H.	34
Daniels, A. L.	35
Davis, W. L.	36
Dental caries	82
Eichberg, J.	37
Ellis, D.	38
Enzymes (see invertase)	
Epps, J. W.	10
Fahs, F. J.	59,60,61,62,63,64
Farley, J. K.	39
Fermentation, in chocolates	135
Fincke, H.	40,41
Flavors	28,30,84,85,98,127,129
Folts, A. V.	42
Fondant	22,35,73,136,137,149 170.
Frame, A. W.	43